



LETTERS TO THE EDITOR

Comments on “Hypercarotenemia after bariatric surgery”[☆]



Comentarios sobre «Hypercarotenemia tras cirugía bariátrica»

Sir,

The article «Hypercarotenemia after bariatric surgery», published by Gutiérrez-Medina, S. et al.,¹ reports the case of a patient with possible hypercarotenemia secondary to vitamin A supplementation after bariatric surgery who attended the emergency room for probable carotenoderma. This case attracted our interest because of the uncommon occurrence of this condition in clinical practice, its unexpected finding in a patient with probable malabsorption after bariatric surgery, and the interpretation and diagnosis based on the parameters reported (“hypercarotenemia secondary to treatment with vitamin A”). In this context, we would like to refer to some points that could contribute to clarify these findings.

First of all, the term «hypercarotenemia» appearing in the title as referring to the diagnosis of the patient does not appear to be adequate, because it refers to an increase in blood carotenoid levels ($>300 \mu\text{g/dL}$),² and no reference is made in the article to any measurement of carotenoid levels during the follow-up of the patient.

Second, the orange-yellow pigmentation of the skin reported in this patient (possible carotenoderma or palmo-plantar xanthosis) is a secondary disorder associated with hypercarotenemia (rather than hypervitaminosis A), although high blood carotenoid levels are not always associated with carotenoderma. This reversible pigmentation is due to the deposition in the horny layer of carotenoids, which become most evident in the soles of the feet, the palms of the hands, the forehead, and the nasolabial folds.³ The cause is, in most cases, due to the excess consumption of carotenoids in the diet or in food supplements, although the deposition may also occur in some diseases

(e.g. diabetes mellitus, hypothyroidism, anorexia nervosa). Moreover, in contrast to the usual homogeneous and bilateral (in both hands and legs) presentation of carotenoderma, pigmentation in the reported case showed color to be especially concentrated in the fingers and only appeared on the palm of one hand, which is extremely unusual in the literature.^{3–5}

Finally, the diagnosis appears to relate palmar pigmentation to hypercarotenemia secondary to hypervitaminosis A, as the patient had symptoms consistent with vitamin A toxicity. Two facts should be mentioned in this regard: (1) blood retinol levels did not exceed the normal range at any time, and were even below the lower limit, i.e. they suggested a deficiency, and high levels of retinyl ester forms (a potential marker of toxicity) were not reported either⁶; and (2) while some carotenoids may be converted into retinol, humans cannot synthesize carotenoids *de novo* or from retinol.⁷

In the case reported, the carotenoderma seen should be associated with excess blood carotenoids resulting from a high intake and, possibly, a blockade in the conversion to retinol due to vitamin A overdosing. Unfortunately, carotenoid intake was not measured, and excess absorption is unlikely because of the malabsorption derived from bariatric surgery.^{8,9} Therefore, because of the lack of information on blood carotenoid levels, and the biochemical criteria suggesting vitamin A toxicity,⁶ the diagnosis should be reconsidered.

References

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[☆] Please cite this article as: Soblechero Martín P, Granado Lorenzo F, Donoso Navarro E, Silvestre Mardomingo MRÁ. Comentarios sobre «Hypercarotenemia tras cirugía bariátrica». *Endocrinol Nutr.* 2016;63:374–375.

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Comments on «Hypercarotinemia after bariatric surgery»[☆]



Comentarios a «Hypercarotinemia tras cirugía bariátrica»

Sir,

With regard to the letter to the editor by Soblechero-Martín et al. in this issue, referring to the case report recently published in *ENDOCRINOLOGÍA Y NUTRICIÓN* and described by our group,¹ we first of all want to thank the authors for their enriching contribution. Second, we would like to clarify some issues.

According to their comments, blood carotenoid and retinyl ester levels were regrettably not measured. In addition, retinol levels were not available at the time the patient attended the emergency room for skin hyperpigmentation. However, the interpretation of vitamin A biochemical measurements is difficult because they may be modified by various circumstances such as decreased retinol binding protein (RBP) levels or retinoid treatment itself.² Low RBP levels could therefore have resulted in falsely low vitamin A levels, leading to long-term supplementation with high vitamin A doses.

On the other hand, although no detailed quantification of the amount of carotenoids taken by the patient was made using food composition tables, the detailed dietary survey performed showed no excess consumption. Moreover, a very weak correlation has been reported between vitamin A intake and serum levels.³

On the other hand, other causes of carotenoderma such as hypothyroidism, diabetes mellitus, anorexia nervosa, nephrotic syndrome, or liver disease were excluded.

Finally, it should be noted that the patient's symptoms, as well as the yellowish pigmentation of the palm of her hand, disappeared after the vitamin A dose was reduced. Therefore, despite the limitations and lack of biochemical measurements due to the unexpectedness of the finding, the timing of the events and the clinical picture led us to attribute the symptoms to treatment with vitamin A, especially given the reversibility of the condition after a substantial reduction of the dose administered. Because of this and the uncommon presentation of the dermatological lesions, we considered the case to be of interest and one worth sharing.

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[☆] Please cite this article as: Gutiérrez Medina S, Iglesias Bolaños P, Ruíz AP, Martínez-Barbeito MB. Comentarios a "Hypercarotinemia tras cirugía bariátrica". *Endocrinol Nutr.* 2016;63:375