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Titanium Pigment and Yellow Nail Syndrome

Vitorino Modesto dos Santos

 Department of Internal Medicine, Armed Forces Hospital and
 Catholic University of Brasília, Brasília, Brazil

Dear Sir,

Yellow nail syndrome (YNS) is considered a rare entity characterized by dystrophic yellowish nails, respiratory disorders, and lymphedema, which has appeared complete in approximately one third of cases [1–4]. The syndrome may be either autosomal dominant with a variable expression, or acquired due to mechanisms involving functional disturbances of lymphatic drainage as well as deposits of titanium in the nail plates [1–4]. Some authors reported tumors in association with YNS, but this concomitance might occur only by chance [3, 4].

I have read with special interest the well-done manuscripts related to the significant role of titanium pigment in the development of YNS, recently published by Ataya et al. [1] and Decker et al. [2]. The patients were diagnosed with the incomplete presentation of YNS because of the lack of lymphedema [3, 4]. In the first report, a 56-year-old woman had chronic sinusitis and no changes on pulmonary and pleural areas [1]. Interestingly, there was the presence of thickened yellow nails and the antecedent of dental implants containing titanium, which may be absorbed and distributed by circulation to diverse tissues such as the liver, spleen, lung, and peritoneum [1]. Noteworthy was the analysis of the total nail composition that revealed a high level of titanium (28 µg/g) [1]. The authors highlighted the use of titanium dioxide as coating, whitener, and opacifier substance in medications, in addition to the limited information about metabolic routes and toxicity of titanium compounds in humans [1]. Decker et al. [2] reported a 67-year-old woman without lymphedema, but with chronic respiratory disorder, yellow nails, absence of lunula, onycholysis, accentuated transverse curvature, thickening, and sluggish nail growth. The authors emphasized the elevated level of titanium (4 µg/g) in the nail plate of the patient and the exposure to titanium from confectioneries, medicines, and dental implants of this mineral concomitant with gold inlay [2].

I would like to add some comments about a study of 5 Brazilian patients with necropsy findings of titanium deposits in samples of liver, spleen, lungs, lymph nodes, and bone marrow [5], but without any change, neither in color nor in the structure of the nails. The origin of deposits detected by studies utilizing common light and polarized microscopy was chronic intravenous injection of crushed propoxyphene hydrochloride tablets containing minerals like basic silicate of magnesium and calcium, in addition to titanium as excipients [5]. Moreover, the characterization of titanium pigment was based on the optical microscopy qualities of the mineral, which appears white with the reflected light, black with the transmitted light, and pink under polarized light [5]. Noteworthy was the lack of yellow nail changes, despite the chronic presence of titanium in the entire body. Interestingly, titanium was not found in the nails of healthy people who were exposed to titanium and gold [2].

The practical usefulness of the studies by Ataya et al. [1] and Decker et al. [2] is really unquestionable; however, the commented findings seem to suggest additional research to better clarify the mechanisms of YNS.

Statement of Ethics

The present manuscript complies with the guidelines for human studies and was done in conformity to institutional standards.

Disclosure Statement

The author had full freedom of manuscript preparation, and there were no potential conflicts of interest. There was no grant support for this study.

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