

Skin hyperpigmentation in Graves' disease without Addison: Case report

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PRESENTATION

Increased cutaneous pigmentation occurs in several systemic diseases: the most well-known of these is Addison's disease in which hyperpigmentation is generalized and represents an accentuation of normal pigment distribution; it often occurs preferentially on the mucosal surface (oral mucosa, areola, gums, and tongue), sexual areas (nipples, areola, axilla, perineum, and genitalia) or points of pressure (elbows, knees, skin folds, and palmer creases). Hyperthyroidism is associated with a wide variety of skin manifestations. These include hyperhidrosis, localized myxedema, eczematous dermatitis, alopecia, abnormal nail growth, telangiectasia, and hyperpigmentation. Hyperpigmentation has been reported in 2% of hyperthyroidism patients with an even higher incidence in Japanese patients. Various degrees of hyperpigmentation have been seen in hyperthyroidism, although descriptions in the literature are few^{1,2}. The alterations in pigmentation are often seen in Graves' disease and may be diffuse or chloasma. These changes in the skin can be seen in exposed or unexposed areas, but are rarely seen in the oral mucosa, nipples, or genitals; it is known that the pigment is melanin; however, the

cause of pigmentary changes remains speculative³. A possibility is due to greater release of pituitary adrenocorticotrophic hormone (ACTH) that compensates for the accelerated degradation of cortisol⁴. We present a case of severe and generalized hyperpigmentation as a component of Graves' disease.

CASE

A 25-year-old Hispanic female, with a history of two normal deliveries, an accident at 3 years of age that caused cornea tear and visual loss of the left eye. She had none current medication. She started 2 years ago with a weight loss of 6 kg, ocular proptosis that worsened the strabismus of the left eye, palpitations, headache, distal tremor, diaphoresis, nervousness, and insomnia. At the physical examination, she had cutaneous generalized hyperpigmentation, worse in exposed sun areas, not in the mucosa, diffuse Grade 2 goiter, sinus tachycardia, and extremities with distal tremor.

The laboratory tests reported: leukocytes $9.6 \times 10^3/\mu\text{l}$ ($3.8-11.8 \times 10^3/\mu\text{l}$), erythrocytes $5.2 \times 10^6/\mu\text{l}$ ($3.63-4.92 \times 10^6/\mu\text{l}$), platelets 267,000 (179,000-408,000),

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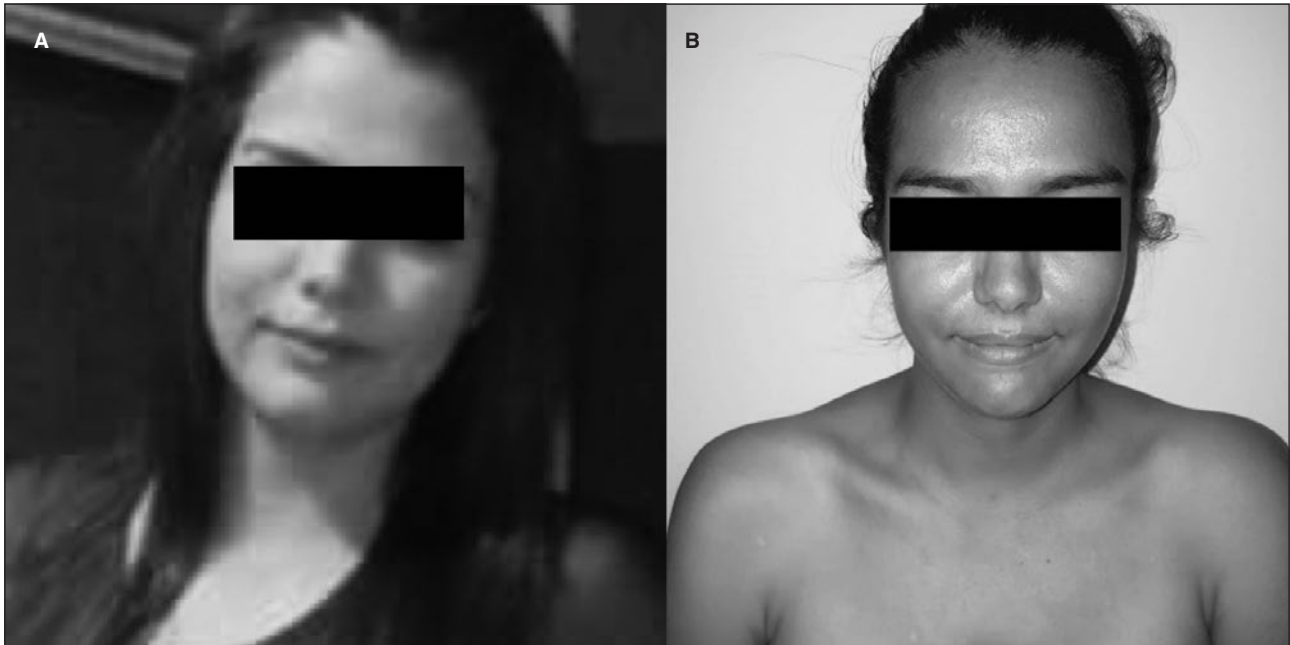


Figure 1. A-B: Before and after the condition.



Figure 2. A-C: Generalized hyperpigmentation predominance in sun-exposed sites. Mucous areas not affected.

alanine aminotransferase 21 UI/L (7-56), aspartate aminotransferase 18 UI/L (5-40), total bilirubin 0.6 mg/dL (0.3-1.9), albumin 3.6 g/L (3.4-5.4), Na 137 mmol/L, K 3.4 mmol/L, Cl 105 mmol/L, glucose 96 mg/dL, ureic nitrogen 11, ACTH 23 pg/mL (9-52 pg/mL), cortisol 15.5 µg/dL (5-25 µg/dL), thyroid stimulating hormone (TSH) 0.00 µU/mL (0.35-4.94 µU/mL), free tetraiodothyronine (FT4) 3.29 ng/mL (0.7-1.48 ng/mL), total triiodothyronine (TT3) 6.25 ng/mL (0.87-1.78 ng/mL), thyroid antipe-

roxidase antibodies 24 U/mL (0-35 U/mL), thyroglobulin antibodies 57 U/mL (0-115 U/mL), and anti-TSH receptor antibodies 0.9 U/L (0-0.4 U/L).

Compared with previous pictures, before the beginning of the disease, the color of the skin rise two scales in Fitzpatrick phototyping. There was no change in pigmentation 6 months after the initial evaluation despite the disease being controlled, initially with thiamazole and then with radioactive iodine (Figs. 1-3).

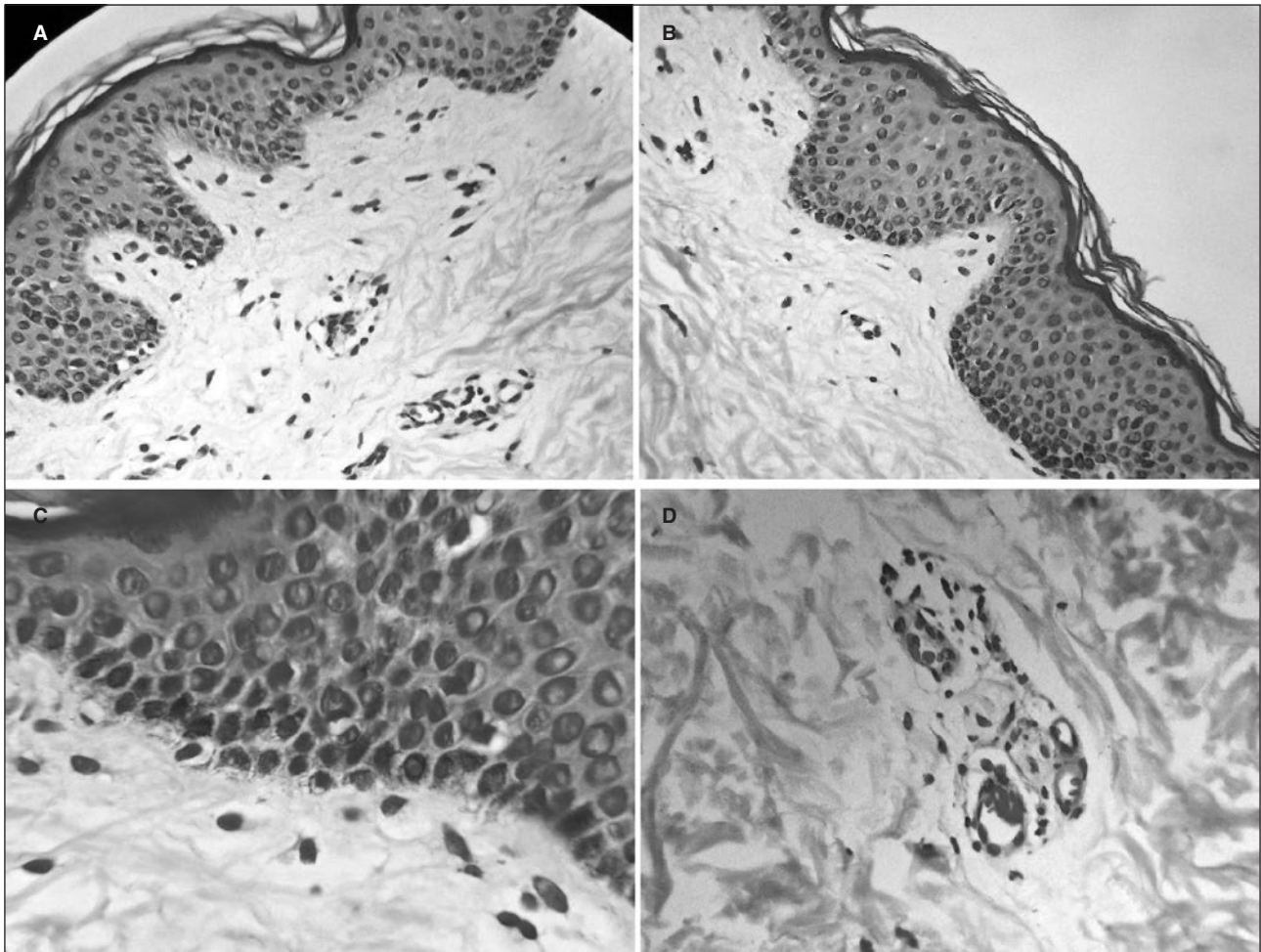


Figure 3. Biopsy of the skin (back, no exposed sun area). **A-C:** Epidermis with adequate maturation and unspecific increase in the melanin pigment of the basal epithelial layer (+), no proliferation of melanocytes is observed. **D:** The dermis shows only mild capillary ectasia.

DISCUSSION

There are few reports of cutaneous hyperpigmentation due to hyperthyroidism or Graves' disease. In one study, the histology of the pigmented skin showed basal melanosis and heavy deposition of hemosiderin around dermal capillaries and sweat glands¹ finding different from those found in the biopsy of our patient, in which the alteration was in the epidermis and only slight capillary ectasia of the dermis. The distribution of hyperpigmentation, the hemosiderin deposition and the response to the treatment (better in Addison) may be characteristic of hyperthyroidism and may represent differences from the pigmentation

seen in Addison's disease¹. Nevertheless in any case that presents with hyperthyroidism and cutaneous hyperpigmentation its necessary to rule out Addison's disease, since both can be present simultaneously in the autoimmune polyglandular syndromes.

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