

# Addison's disease presenting with hyperpigmentation

Chin Voon Tong, Xin-Yi Ooi

Department of Medicine,  
Hospital Melaka, Melaka,  
Malaysia

**Correspondence to**  
Dr Chin Voon Tong;  
tchinvoon@yahoo.com

Accepted 10 August 2021

## DESCRIPTION

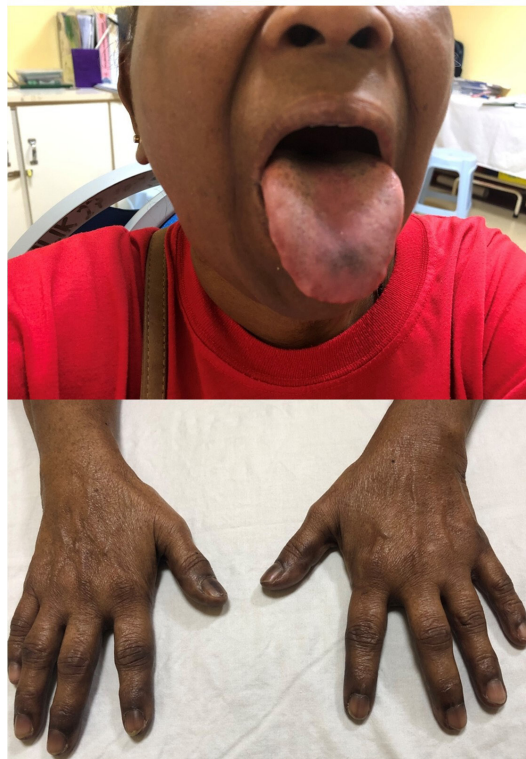
Our patient is a 60-year-old woman of Indian ethnicity with background of diabetes mellitus for 10 years. She presented with persistent vomiting, giddiness and significant weight loss for 1 month. Of note, she had recent hypoglycaemia necessitating gradual reduction in doses of glucose-lowering medications. Blood investigations revealed hyponatraemia and relative hyperkalaemia. Morning cortisol was  $<13.8$  nmol/L with adrenocorticotrophic hormone (ACTH)  $>278$  pmol/L. On specific further questioning, she realised that for the past few months, her skin had become significantly darker than before (figure 1). A CT scan of her adrenal glands was normal. Pancreatic autoantibodies, which were sent because she has diabetes mellitus, were negative. An anti-adrenal autoantibody screen is not available in our laboratory. She was treated for Addison's disease with hydrocortisone replacement. After replacement, her symptoms improved with reduction in her skin pigmentation (figure 2). ACTH level reduced to 9.2 pmol/L.

In Addison's disease, there is adrenalitis leading to cortisol deficiency. The resulting negative feedback to the hypothalamic pituitary adrenal



**Figure 2** Resolution of skin hyperpigmentation after glucocorticoid replacement.

axis leads to increased proopiomelanocortin, which is a prohormone that is cleaved into ACTH and melanocyte-stimulating hormone. This leads to melanin synthesis by epidermal melanocytes, which causes increased skin pigmentation.<sup>1</sup> In patients with darker skin tones, hyperpigmentation may be missed. With glucocorticoid replacement, ACTH levels decrease and hyperpigmentation improves.



**Figure 1** Hyperpigmentation prior to treatment.

## Patient's perspective

I did not realise that the darkening of my skin had anything to do with my medical condition. I feel much better after the treatment was started.

## Learning points

- ▶ Primary adrenal insufficiency caused by Addison's disease may present with skin hyperpigmentation.
- ▶ Hyperpigmentation in patients with darker skin tones may be missed.
- ▶ Adequate replacement of glucocorticoid in Addison's disease improves hyperpigmentation.



© BMJ Publishing Group Limited 2021. No commercial re-use. See rights and permissions. Published by BMJ.

**To cite:** Tong CV, Ooi X-Y. *BMJ Case Rep* 2021;**14**:e245610. doi:10.1136/bcr-2021-245610

**Contributors** CVT and X-YO managed the patient and wrote the paper.

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient consent for publication** Obtained.

**Provenance and peer review** Not commissioned; externally peer reviewed.

### REFERENCE

- 1 Erickson QL, Faleski EJ, Koops MK, *et al.* Addison's disease: the potentially life-threatening Tan. *Cutis* 2000;66:72–4.

Copyright 2021 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <https://www.bmj.com/company/products-services/rights-and-licensing/permissions/>  
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

### Customer Service

If you have any further queries about your subscription, please contact our customer services team on +44 (0) 207111 1105 or via email at [support@bmj.com](mailto:support@bmj.com).

Visit [casereports.bmj.com](http://casereports.bmj.com) for more articles like this and to become a Fellow