IDCases 20 (2020) e00750

Contents lists available at ScienceDirect

IDCases

journal homepage: www.elsevier.com/locate/idcr

Case report

Drug-related pellagra in a Ugandan woman on isoniazid preventative therapy

Sarah J. Coates[a,b,*], Amy W. Blasini[c,d], Patrick Musinguzi[e,f], Miriam Laker-Oketta[b,e]

[a] Department of Dermatology, University of California, San Francisco, CA, United States
[b] Infectious Diseases Institute, Kampala, Uganda
[c] University of Michigan Medical School, Ann Arbor, MI, United States
[d] Makerere University School of Public Health, Kampala, Uganda
[e] Makerere University College of Health Sciences, Kampala, Uganda
[f] Head of Dermatovenereology Division, Mulago National Referral Hospital, Kampala, Uganda

ARTICLE INFO

Article history:
Received 21 March 2020
Received in revised form 21 March 2020
Accepted 22 March 2020

Keywords:
IPT
Latent tuberculosis
Adverse drug reaction
HIV

A 43-year-old woman with well-controlled HIV was prescribed a 6-month course of isoniazid preventative therapy (IPT) (300 mg daily) and pyridoxine (50 mg daily) for latent tuberculosis as part of a nationwide effort in Uganda to decrease the burden of tuberculosis among persons with HIV [1]. Approximately 4 months later, she developed symmetric, photo-distributed, well-demarcated, severely pruritic plaques with scale resembling peeling paint on her bilateral forearms, posterior neck, and upper back (Fig. 1). She denied gastrointestinal or neurologic symptoms. Before visiting the dermatology clinic, the working diagnosis of her primary provider was allergic contact dermatitis, but she remained untreated.

Based on the morphology, distribution, and developmental time course of her rash, a clinical diagnosis of isoniazid-related pellagra was made. Given the high cost of niacin locally, a twice-daily B complex multivitamin containing 7.5 mg niacinamide was prescribed. Topical betamethasone ointment twice daily was given for pruritus. Her IPT was also stopped, as she had received five of six months of the planned course. One month later, her rash had completely resolved, leaving behind post-inflammatory hyperpigmentation and mild, steadily improving residual pruritus.

Pellagra is a clinical syndrome caused by vitamin B3 (niacin) deficiency. Although classically associated with altered vitamin B6 (pyridoxine) metabolism, isoniazid also interferes indirectly with the conversion of tryptophan to nicotinamide [2]. Isoniazid may therefore cause pellagra despite pyridoxine supplementation. This is especially relevant in settings where maize is the staple dietary carbohydrate for the population [3]. If available, clinicians practicing in such areas should consider obtaining baseline tryptophan and nicotinamide serum levels and initiating B complex vitamin and/or nicotinamide supplementation at the onset of IPT.

In settings planning broad IPT implementation, patients should be educated about possible adverse effects of isoniazid, and physicians should be comfortable recognizing and treating these, including pellagra. Isoniazid-related pellagra usually resolves after the offending medication is stopped. For patients that must continue IPT, nicotinamide or a B complex multivitamin, in addition to dietary counseling regarding niacin-rich food sources (including beef liver, chicken breast, marinara sauce, tuna fish, brown rice, and peanuts) [4], are appropriate initial steps. Medium- to high-potency topical corticosteroid ointment can help relieve symptoms while the underlying cause is being addressed. For those with severe

* Corresponding author at: Department of Dermatology, University of California, 1701 Divisadero Street, Suite 4-20, San Francisco, CA, 94143-0316, United States.
E-mail address: sarah.coates@ucsf.edu (S.J. Coates).

https://doi.org/10.1016/j.idcr.2020.e00750

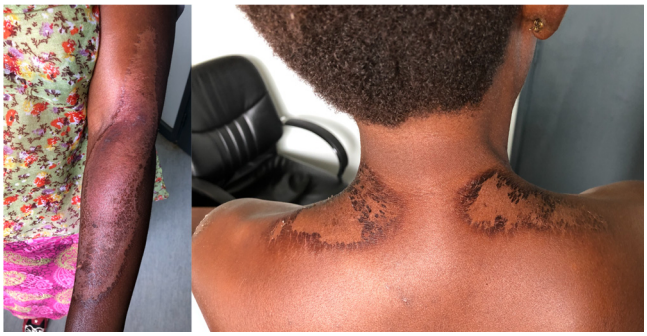

Fig. 1. Well-demarcated plaques with "peeling paint" scale distributed symmetrically on sun-exposed sites.

symptoms refractory to these measures, physicians should consider premature termination of IPT followed by careful monitoring for signs of active TB. Alternative regimens such as rifampin, which is associated with greater completion rates and less hepatotoxicity compared to isoniazid [5], should also be considered.

Informed consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request

CRediT authorship contribution statement

Sarah J. Coates: Conceptualization, Writing - original draft. **Amy W. Blasini:** Writing - review & editing, Resources. **Patrick Musinguzi:** Writing - review & editing. **Miriam Laker-Oketta:** Supervision, Writing - review & editing.

Acknowledgements

Dr. Sarah J Coates was supported by the National Cancer Institute and the Fogarty International Center of the National Institutes of Health (NIH) under Award Number D43TW009343 as well as the University of California Global Health Institute (UCGHI). The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH or UCGHI.

Amy W. Blasini was supported by the Fogarty International Center of the National Institutes of Health under grant number D43TW009345 awarded to the Northern Pacific Global Health Fellows Program. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

References

[1] Ministry of Health Uganda. Uganda clinical guidelines 2016. 2016.
[2] Darvay A, Basarab T, McGregor JM, Russell-Jones R. Isoniazid induced pellagra despite pyridoxine supplementation. Clin Exp Dermatol 1999;24(3):167–70.
[3] Kipsang JK, Choge JK, Marinda PA, Khayeka-Wandabwa C. Pellagra in isoniazid preventive and antiretroviral therapy. IDCases 2019;17:e00550.
[4] U.S. Department of Agriculture. FoodData central. 2019 [Online]. Available: https://fdc.nal.usda.gov/. [Accessed: 19 March 2020].
[5] Ronald LA, et al. Treatment with isoniazid or rifampin for latent tuberculosis infection: Population-based study of hepatotoxicity, completion, and costs. Eur Respir J 2020(January 24) [Epub ahead of print], p. 1902048.