Dermatitis herpetiformis resistant to dapsone due to dietary iodide ingestion

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INTRODUCTION

Dermatitis herpetiformis (DH) is an intensely pruritic skin disease characterized by the presence of papulovesicles and excoriations on extensor surfaces in the presence of gluten ingestion. Exacerbation of DH may be induced by oral or topical potassium iodide and was used as a diagnostic test before direct immunofluorescence became available.[1] There is less evidence supporting an association between dietary iodide in the form of iodide-rich foods and supplements, such a kelp, and flares of DH.[2] We present a case of a patient with DH that was poorly controlled with a gluten-free diet (GFD) and dapsone until her use of a kelp-containing dietary supplement was discovered.

CASE REPORT

A 46-year-old white woman presented with a 2-year history of pruritus. On physical examination, there were excoriations on the back and abdomen; erythematous, urticarial papules on the chest and flexor forearms; and excoriations on the extensor surfaces of the legs. She was initially diagnosed with urticaria, which was managed with prednisone, cetirizine, mycophenolate mofetil, omalizumab injections, and a dairy-free diet. Scratch testing for immunoglobulin E–mediated reactions showed no allergens, but patch testing did show a sensitivity to balsam of Peru and nickel. Subsequently, a biopsy of perilesional skin was done that showed granular IgA in dermal papillae, and a diagnosis of dermatitis herpetiformis was made.

The patient was treated with dapsone. The dosage was titrated up to 400 mg daily (4 mg/kg) in combination with a strict GFD. Despite the high-dose dapsone and a GFD, her symptoms persisted. Treatment was changed to sulfapyridine 500 mg 3 times daily, with no improvement.

Abbreviations used:

DH: dermatitis herpetiformis
GFD: gluten-free diet

Detailed dietary history confirmed that the patient had eliminated gluten from her diet but also indicated that she had been taking 2 dietary supplements, one containing kelp (Microplex VMZ, dōTERRA, West Pleasant Grove, UT) and the other containing marine oil (xEO Mega, dōTERRA). Because of the known high levels of iodide in kelp (16 ± 2 μg/g to more than 8,165 ± 373 μg/g)[3] and marine oil[2] and the refractory nature of her condition, the patient was asked to discontinue her use of the kelp-containing supplement. Over a 2-month period, her condition showed a dramatic improvement of pruritus, and she stopped developing new lesions. Her symptoms of DH stabilized, and she has remained clear for 4 years with a GFD, dapsone 50 mg twice a day, and topical corticosteroid as needed.

DISCUSSION

The immunopathologic hallmark of DH is a gluten sensitivity triggering the presence of granular IgA in dermal papillae, which colocalizes with its antigen, transglutaminase 3.[4] Low doses of dapsone and dietary gluten restriction are usually sufficient to control the disease. However, oral iodide is known to trigger flares.[1,4] The mechanism for the worsening of DH by iodide has been recently described. The IgA antibodies to transglutaminase 3 complexes in DH skin are known to be enzymatically active. This

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enzymatic activity is dramatically increased in the presence of iodide.[5]

Common environmental exposures of iodide causing DH flares include potassium iodide, contrast media used in radiologic imaging, triiodomethane in dental packing strips, and foods rich in iodide.[1,2,6] However, to our knowledge, no other cases linking iodide-rich dietary supplements to DH flares have been reported. Exacerbations of DH have also been reported with other substances. Medications most clearly linked to drug-induced DH flares include nonsteroidal anti-inflammatory drugs, specifically ibuprofen and indomethacin.[7,8]

Our patient had symptoms of DH for several years before her flares were linked to daily dietary supplements containing a significant amount of kelp and marine oil, substances both high in iodide.[2,3] The 25 μg/g of iodide contained in 1 serving of dōTERRA Multiplex VMz contributes as much as 17% of the recommended daily allowance of iodide.[9] It is likely that a significant amount of marine oil (combined total of 670 μg/serving of docosahexaenoic acid, eicosapentaenoic acid, and other omega-3 fatty acids) in the dōTERRA xEO taken by the patient may very well have also contributed to her DH flares.[10] This amount of daily iodide consumption, although significant, may be overlooked by consumers and their providers. An iodide sensitivity as pronounced as that of our patient is rare; however, this report highlights the potential for iodide-induced exacerbations in patients with DH. Our findings encourage patients with DH that is refractory to standard treatment and their physicians to explore possible sources of iodide exposure in their daily diet or environment, especially in an easily overlooked component of the complete medical history—dietary supplement use.

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