

Systemic Contact Dermatitis due to Flaxseed Ingestion

To the Editor:

Here we discuss a 46-year-old white woman with a history of skin reactions to costume jewelry who presented with an 8-month history of foot dermatitis intermittently controlled with use of topical steroids. Physical examination showed minimal erythema and lichenification of the soles of her feet. Patch testing with a modified North American Contact Dermatitis Group Standard Series revealed a 3+ reaction to nickel and a 2+ reaction to cobalt. She was counseled on nickel avoidance and provided with information on a low-nickel and low-cobalt diet. At a subsequent visit, the patient had resolution of her dermatitis. The patient attributed her improvement to avoiding high-nickel and/or cobalt-containing foods but specifically to discontinuing flaxseed supplements, which she had started taking in the preceding months. She was thus diagnosed with systemic contact dermatitis (SCD).

Systemic contact dermatitis describes a cutaneous eruption that occurs in previously sensitized individuals in response to the systemic re-exposure to the inciting allergen.¹ The clinical presentation of SCD includes a wide spectrum of manifestations, the most common of which is pompholyx or dyshidrotic eczema of the hands and feet. Interestingly, systemic exposure to the allergen can occasionally cause dermatitis in the same area where the initial elicitation event occurred, such as a patch testing site.¹ It is thought that memory T-cells remain at previously sensitized cutaneous locations, which may elucidate why previously exposed skin is more likely to flare.¹

Sensitization rates to nickel have been reported as high as 17% of women and 3% of men, although they are thought to be increasing.¹ Foods that consistently contain high levels of nickel include seafood, chocolate, grains, nuts, and seeds, including flaxseeds, which our patient was taking as a supplement (Table 1).¹⁻⁴ The literature supports the role of dietary nickel in causing cutaneous eruptions consistent with allergic contact dermatitis, and growing evidence suggests that avoidance of dietary nickel can lead to clinical improvement in some patients with SCD,¹ which was observed in our patient. One recent retrospective study revealed that, of 339 patients who had atopic-like dermatitis and were nickel sensitized, 277 (80%) achieved complete or near-complete recovery when complying with a low-nickel diet, and 185 (89%) experienced a relapse in

TABLE 1. Foods and Their Nickel and Cobalt Content²⁻⁴

Food	Nickel Content, mg/kg	Cobalt Content, mg/kg
Eggs	0.03	0.005
Kale	0.20	Not applicable
Cashews	4.1–4.7	0.041
Flaxseed	17.0	1.7
Chocolate	27.9	0.050

their residual dermatologic manifestations when exposed to a systemic nickel challenge.⁵ This further corroborates the idea that dietary nickel plays an important role in the incitement and persistence of chronic dermatitis in nickel-sensitized patients.

Cobalt is another metal that has been reported to cause SCD and exists in particularly high quantities in flaxseeds (Table 1).²⁻⁴ As with nickel, dietary restriction of cobalt has been shown to improve dermatitis in patients with positive patch test reactions to cobalt.¹

In conclusion, for individuals with recalcitrant, widespread dermatitis and a positive nickel history, and even more so with positive patch tests to nickel and cobalt, it is paramount to review their diet utilizing a list of nickel/cobalt-rich foods as a guide. Patients will not typically include food supplements in their list of medications, making a focused history all the more important.

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