

Systemic Contact Dermatitis Caused by Oral Chromium Picolinate

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Although nickel is the metal most commonly implicated in systemic contact dermatitis, other metals such as chromate have also been known to cause dermatitis when ingested. Chromium picolinate has been espoused as a nutritional supplement. Allegedly, it helps control blood sugar in diabetes and may reduce cholesterol and blood pressure levels.

Case Report

A 35-year-old white male presented with a 2-month history of dermatitis. He had no history of atopy. He had a prior history of allergy to a leather watch band. The patient had begun taking various oral vitamin and mineral preparations several weeks before the onset of the dermatitis.

On examination, a subacute dermatitis with erythema and scaling was present in scattered patches. These were primarily on the lower legs, ankles, hands, and wrists.

Patch testing to the North American Contact Dermatitis Group standard series as well as other selected allergens was performed. Allergens were applied on Finn Chambers on Scanpor tape for 48 hours with readings at 48 and 96 hours. Allergens were supplied by Chemotechnique, Inc. (Malmo, Sweden) and Glaxo Dermatology, Inc. (Research Triangle Park, NC). Reactions to potassium dichromate 2+ at 48 and 96 hours were observed. During patch testing, the dermatitis flared at previous sites. The patient was counseled to discontinue oral intake of chromium picolinate.

Discussion

Chromate is a common cause of allergic contact dermatitis. Recent data from the North American Contact Dermatitis Group, a group that monitors the prevalence of allergy to various contactants, indicate that chromate allergy was detected in 2% of 3106 patients tested.¹ These patients presented with suspected aller-

gic dermatitis and were patch-tested to establish an etiology. Common sources of external exposure include cement, brick, drywall, and similar construction materials. In addition, since most leather is tanned with chromates, shoes, belts, and other leather objects may cause dermatitis in the chromate-sensitive individual. Industrial exposure of workers in automotive, machine-tool, and other metal working facilities is another cause of chromate dermatitis.

Chromate in the diet partially comes from food, but most is added during food processing.² For instance, mixing meat in a food processor in the presence of acid (orange juice) doubled the chromium content of the food.³ The daily human chromium intake has been studied only on a small scale, but is estimated to be between 20 and 85 mg/day.⁴ Wide regional variations are expected because of differences in soil conditions and food preparation techniques. Typically, chromium supplementation for therapeutic reasons is used at dosages between 200 and 1000 mg/day.⁵

Individuals with contact allergy to chromate may develop widespread dermatitis if they ingest chromium-containing dietary supplements. Diagnostic patch testing should be performed in patients who develop dermatitis after beginning chromium picolinate supplementation.

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