

Short Communications

Allergic contact dermatitis due to nickel in a neoprene wetsuit

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Case Report

A 31-year-old woman presented with relapsing eczema on her limbs (especially the wrists), neck and thorax, after wearing a wetsuit for watersport. Patch tests with the GIRDCA standard series revealed only a ++D2/+++D3 reaction to nickel sulfate. Additional patch tests with a rubber series (including thiourea derivatives), a plastics and glues series and a dyes series were all negative. A closed patch test with a 1×1 cm piece of neoprene fabric from the wetsuit showed a +++D3 reaction. A dimethylglyoxime test gave an uncertain result due to running of the dyes, but atomic absorption analysis confirmed a high concentration of nickel, higher in the wristbands (0.0257% w/w) than elsewhere (0.0229% w/w). A few months later, the patient wore a new wetsuit, made from neoprene covered by thick pink-and-violet fabric, without any relapse. Atomic absorption analysis of a sample of this new wetsuit showed a slightly lower amount of nickel than in the original black wetsuit. When the patient was re-exposed to her old wetsuit, dermatitis recurred.

Discussion

Neoprene is an oil-resistant synthetic rubber made by polymerization of chloroprene. It is widely used for making gloves, shoes, elastic supports and other orthopedic devices. Numerous additives, such as accelerators and antioxidants, are added in its production, including thiourea compounds (1–5). All reported cases of allergic contact dermatitis from neoprene wetsuits have been induced by thiourea derivatives, such as diethylthiourea, ethylbutylthiourea, diphenylthiourea (6–9).

The presence of nickel in black neoprene is probably related to dyes or to dyeing procedure. Prolonged contact between the wetsuit and the skin, friction and sweating under occlusion may enhance the release of

nickel. The dermatitis was worse at the wrists, where the neoprene wetsuit had no covering fabric, while no dermatitis was observed with the new wetsuit that had a thick covering fabric. To our knowledge, this is the 1st documented case of allergy to neoprene in which nickel and not rubber proved to be the responsible allergen.

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