



Don't forget the sponge

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Less well-recognized sources of rubber accelerators, including surgical scrub sponges, are important exposures to consider in surgical

personnel experiencing occupationally induced hand and/or forearm dermatitis.

CASE REPORT

A 30-year-old man presented with 8 years of bilateral hand dermatitis that started during medical school and continued into his surgical residency. At work, he frequently applied hand sanitizer, scrubbed his arms and hands before cases, and wore nitrile gloves. His hand dermatitis was previously treated with topical corticosteroids. His symptoms improved during extended periods outside the hospital.

His hand and forearm dermatitis was well controlled during our initial evaluation, as he had been performing a research elective rather than clinical work. He was tested with our baseline, cosmetics, fragrance, rubber and bakery series (Chemotechnique Diagnostics, Vellinge, Sweden). The following occupational products were also tested: hand sanitizer, three surgical scrub sponges, two nitrile gloves, and 5% dilutions of two hand soaps and three surgical scrub solutions. Allergens were occluded under Finn Chambers (SmartPractice, Phoenix, Arizona), fixed with 3M Micropore tape, and removed after 2 days. On day (D) 3, the patient showed reactions to 1,3-diphenylguanidine (DPG) (+++), carba mix (++), diphenyl thiourea (+), shellac (++), 2-bromo-2-nitropropane-1,3-diol (Bronopol) (+), propolis (+), cobalt chloride (+), Disperse Blue 153 (+), dimethyl dihydroxyethyleneurea (+), dimethylol dihydroxyethyleneurea (+), geraniol (+), *Mentha piperita* oil (+), linalool (+), and *Juniperus oxycedrus* extract (+). He also had positive reactions to one hand soap (+) and one glove (+), and a +++ reaction to the BD E-Z 116 surgical scrub sponge (Figure 1). We diagnosed him with occupationally induced hand dermatitis secondary to fragrances in hand soaps and suspected rubber accelerators in his nitrile gloves and surgical scrub sponge. Although his exposure to the sponge was not as long in duration as his exposure to the gloves, the scrubbing procedure involves friction and contact with water for several minutes; therefore, the combined effects of rubber additives in the sponge and gloves, friction, and humidity all probably contributed to his symptoms.

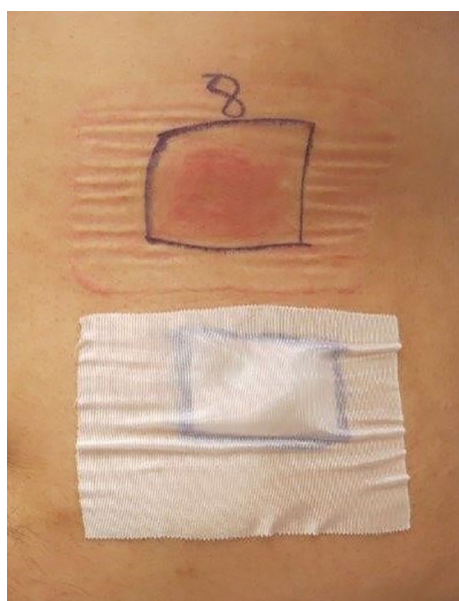


FIGURE 1 An extreme (++++) reaction to the BD E-Z 116 surgical scrub sponge on day 3

DISCUSSION

Sensitization to rubber accelerators among healthcare workers (HCWs) is common. The estimated prevalence of rubber allergy in HCWs is up to 22%, as compared with ~12% in the general US population.¹ Operating room personnel and atopic individuals are at higher risk of sensitization.^{1,2} In a study of 425 HCWs, 17 of 22 patients with occupational contact allergy to gloves showed reactivity to rubber additives, most commonly DPG.³

Hand dermatitis associated with non-natural rubber latex gloves is well established.^{2,3} However, additional exposures, such as surgical scrub sponges, should also be considered in the evaluation and treatment plans for HCWs. To our knowledge, this is the first reported case of allergic contact dermatitis involving a surgical scrub sponge. Although a chemical analysis of the offending surgical sponge is required to confirm the presence of our patient's specific rubber allergens, he developed a +++ reaction to the sponge itself. He was advised to use accelerator-free nitrile gloves and scrub with povidone-iodine on a washcloth without the use of a sponge. Three months after patch testing, while back on clinical rotations, he was dermatitis-free while adhering to our proposed allergen avoidance strategies. Although improvement might have occurred as a result of changing gloves, his extreme reaction to the surgical sponge on testing suggests that allergy to the sponge was an additional factor contributing to his symptoms. Thus, in cases of occupationally induced hand and/or forearm dermatitis caused by rubber accelerators among operating room personnel, it is important to consider exposures not only to gloves, but also to surgical sponges.

CONFLICTS OF INTEREST

A. M. Goldminz's wife has stock in Johnson and Johnson. P. L. Scheinman is a consultant for Patton Squire Boggs law firm. J. Isaac has no funding or conflicts of interest to declare.

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